

name

project

date

tasks

$$(11) \quad (x-1)^2 + (y-1)^2 = 13 \quad (3, 4)$$

$$2(x-1)(1) + 2(y-1)(1) \frac{dy}{dx} = 0$$

$$2x - 2 + (2y - 2) \frac{dy}{dx} = 0$$

$$(2y - 2) \frac{dy}{dx} = -2x + 2$$

$$\frac{dy}{dx} = \frac{-2x + 2}{2y - 2} = \frac{-2(3) + 2}{2(4) - 2} = \frac{-6 + 2}{8 - 2} = \frac{-4}{6} = -\frac{2}{3}$$

$$(12) \quad (x+2)^2 + (y+3)^2 = 25 \quad @ (1, -7)$$

$$2(x+2) + 2(y+3) \frac{dy}{dx} = 0$$

$$x+2 + (y+3) \frac{dy}{dx} = 0$$

$$\frac{dy}{dx} = \frac{-x-2}{y+3} = \frac{-1-2}{-7+3} = \frac{-3}{-4} = \frac{3}{4}$$

$$(17) \quad x^2 + xy - y^2 = 1 \quad @ (2, 3)$$

$$2x + (1)y + x \left(\frac{dy}{dx} \right) - 2y \frac{dy}{dx} = 0$$

$$2x + y + x \frac{dy}{dx} - 2y \frac{dy}{dx} = 0$$

$$\frac{dy}{dx} (x - 2y) = -2x - y$$

$$\frac{dy}{dx} = \frac{-2x - y}{x - 2y} = \frac{-2(2) - 3}{2 - 2(3)} = \frac{-7}{2 - 6} = \frac{-7}{-4} = \frac{7}{4}$$

$$@ \quad m = \frac{7}{4}, \quad pt = (2, 3) \quad @ \quad y = \frac{7}{4}x + \frac{29}{4}$$

$$y - 3 = \frac{7}{4}(x - 2)$$

$$y - 3 = \frac{7}{4}x - \frac{7}{2}$$

$$y = \frac{7}{4}x + \frac{1}{2}$$